Exhibit E – Public Participation Plan

UPRIVER DAM SEDIMENTS SITE

DRAFT PUBLIC PARTICIPATION PLAN FOR THE

Draft Cleanup Action Plan and Consent Decree

PREPARED BY:

WASHINGTON STATE DEPARTMENT OF ECOLOGY

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or
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Tper461@ecy.wa.gov

Updated March 2005

INTRODUCTION

Overview of the Public Participation Plan

This Updated Public Participation Plan (Plan) focuses on public participation at the Upriver Dam Sediments Site. Details about the location and background of the Site, companies involved in the project and contaminants of concern are found on pages 4-9.

The purpose of the Public Participation Plan is to promote public understanding of the Washington Department of Ecology's responsibilities, planning, and cleanup activities at the Site. It also serves as a way of gathering information from the public that will assist Ecology, Kaiser Aluminum & Chemical Corporation and Avista Development, Inc. to conduct the investigation and cleanup planning in a manner that is protective of human health and the environment. The Plan is designed to help the community living near the Upriver Dam Sediments Site, as well as the general public of Spokane, to be informed regarding Site cleanup activities and contribute to the decision making process where applicable.

This Plan has been developed by the Washington Department of Ecology (Ecology) and complies with the Washington State Model Toxics Control Act (MTCA) regulations (Chapter 173-340-600 WAC). Ecology will determine final approval of the Plan as well as any amendments.

Documents relating to the cleanup may be reviewed at the repositories listed on page 10 of this Plan. If individuals are interested in knowing more about the site or have comments regarding the

Public Participation Plan, please contact one of the individuals listed below:

Mr. John Roland, Site Manager WA State Department of Ecology Toxics Cleanup Program 4601 North Monroe Spokane, WA 99205 509-329-3581 E-mail: jrol461@ecy.wa.gov Mr. Doug Pottratz Environmental Compliance Administrator Avista Development, Inc. P O Box 3727 Spokane, WA 99220-3727 509-495-4499 E-mail: dpottratz@avistacorp.com Ms. Carol Bergin, Public Involvement WA State Department of Ecology Toxics Cleanup Program 4601 North Monroe Spokane, WA 99205 509-329-3546 E-mail: cabe461@ecy.wa.gov	Ms. Johnnie Landis, Public Disclosure WA State Department of Ecology 4601 North Monroe Spokane, WA 99205 509-329-3415 E-mail: johh@ecy.wa.gov **Если вам нужно помощь по русски, звоните** Igor Vern 360-407-0281 Iver461@ecy.wa.gov or Tom Perkow 509-575-2024 Tper461@ecy.wa.gov **Para asistencia Espanol**: Sr. Antonio Valero WA State Department of Ecology Toxics Cleanup Program 15 West Yakima Avenue, Suite 200 Yakima, WA 98902-3401 509-454-7840 E-mail: aval461@ecy.wa.gov

Public Participation and the Model Toxics Control Act

The Model Toxics Control Act (MTCA) is a "citizen-mandated" law that became effective in 1989 to provide guidelines for the clean up of contaminated sites in Washington State. This law sets up standards to make sure the clean up of sites is protective of human health and the environment. Ecology's Toxic Cleanup Program investigates reports of contamination that may threaten human health and/or the environment. If an investigation confirms the presence of contaminants, the site is generally ranked and placed on a Hazardous Sites List. Current or former owner(s) or operator(s), as well as any other potentially liable persons (PLPs), of a site may be held responsible for cleanup of contamination according to the standards set under MTCA. The PLPs identified by Ecology to date for this Site are Avista Development, Inc., a subsidiary of Avista Corporation (Avista); Kaiser Aluminum & Chemical Corporation (Kaiser), Inland Empire Paper Company (Inland Empire) and Liberty Lake Sewer District (Liberty Lake). Public participation is an important part of cleanup under the MTCA process. The participation needs are assessed at each site according to the level of public interest and degree of risk posed by contaminants. Individuals who live near the site, community groups, businesses, government, other organizations and interested parties are provided an opportunity to become involved in commenting on the cleanup process. The Public Participation Plan includes requirements for public notice such as: identifying reports about the site and the repositories where reports may be

read; providing public comment periods; and holding public meetings or hearings. Other forms of participation may be interviews, citizen advisory groups, questionnaires, or workshops. Additionally, citizen groups living near contaminated sites may apply for public participation grants (during open application periods) to receive technical assistance in understanding the cleanup process and to create additional public participation avenues.

SITE BACKGROUND

Site Description and History

The Upriver Dam site falls within the city of Spokane Valley, Spokane County, Washington (Appendix A Site Map) and is surrounded by residential homes, industrial and commercial businesses, a community college, police training center and other land uses. The site area of investigation begins at approximately river mile 80 near Upriver Dam and continues upstream to approximately river mile 85 just east of the Centennial Trail footbridge.

Several factors contributed to the cleanup investigations behind Upriver Dam. Fish sampling conducted between 1978 and 1999 showed high levels of lead and polychlorinated biphenyls (PCBs) in fish. This led Ecology, the Washington State Department of Health, and the local Spokane Regional Health District to issue a fish consumption advisory (see Appendix B). Ecology sampled sediments immediately behind Upriver Dam in 2000 and results confirmed the presence of PCBs. Additional studies conducted by Ecology, and review of historical records, affirmed concerns that known wastewater discharges may also contribute contamination to fish and sediments in this area.

In the fall of 2002, initial investigations were conducted to determine where and how much PCB contamination was in sediments behind Upriver Dam. Results demonstrated to Ecology that a formal Remedial Investigation/Feasibility Study was necessary to protect human health and the environment. The information collected from recent studies also resulted in a further understanding of PCBs in sediments and PCBs coming from Spokane area point sources (i.e., industrial and municipal permitted discharges). Avista, Kaiser and Liberty Lake Sewer District have been identified as potential contributors to PCB contamination through discharges of effluent wastewater to the Spokane River.

In January 2003, Ecology, Avista Development, Inc. and Kaiser Aluminum & Chemical Corporation entered into a legal agreement to further evaluate the extent of PCB contamination in the Upriver Dam area. Avista Development, Inc. and Kaiser Aluminum & Chemical Corporation are cooperating with Ecology in this site cleanup. Liberty Lake Sewer District and Inland Empire Paper Company have also been identified as responsible parties but have chosen not to participate in the cleanup. Ecology is accelerating this work to assure certainty and timeliness of cleanup, which is affected by Kaiser Aluminum & Chemical Corporation's bankruptcy.

Avista is the successor to the Pentzer Development Corporation which owned Spokane Industrial Park located on the Spokane River at approximately rivermile 87. The United States government is the past owner of the Spokane Industrial Park property, which was

originally constructed as a naval supply depot for use during World War II. Pentzer discharged industrial effluent wastewater to the Spokane River prior to 1994, under provisions of the State of Washington Water Pollution Control Law and the federal Water Pollution Control Act, or predecessor laws. Since 1994 Industrial Park wastewater is discharged to the City of Spokane municipal treatment plant.

Kaiser is the owner and operator of the Kaiser Trentwood Works in Spokane, Washington. Kaiser filed a petition for relief under Chapter 11 of the United States Bankruptcy Code in February 2002. Trentwood is located on the Spokane River at approximately river mile 86. Kaiser discharges treated industrial effluent wastewater to the Spokane River. The discharges are permitted under the provisions of the State of Washington Water Pollution Control Law and the federal Water Pollution Control Act. Kaiser has implemented numerous improvements to reduce PCBs in the facility's waste stream.

Contaminants of Concern

Polychlorinated biphenyl's (PCBs) are the main contaminants of concern at this site. a group of manufactured synthetic chemicals, either solids or oily liquids. They may range from colorless to light yellow in color and have no smell or taste. These chemicals were historically used as insulating fluids, coolants and lubricants in transformers, capacitors or other electrical equipment; as heat transfer and hydraulic fluids; in inks and carbonless paper. The manufacture of PCBs stopped in the United States in 1977 because of evidence they build up in the environment and may cause harmful health effects.

Common routes of human exposure to PCBs may include drinking contaminated well water; eating contaminated foods such as dairy, fish, and meat; breathing air contaminated with PCBs; conducting maintenance on electrical transformers containing PCB fluids or handling materials containing PCBs. For details regarding PCB health effects, please see the Agency for Toxic Substances and Disease Registry (ATSDR) website at www.atsdr.cdc.gov/tfacts17.html.

Potential human exposure risks for the Spokane River are primarily through eating fish caught in the river (see Appendix B). There are currently no known or suspected groundwater or airborne exposure risks as the contaminated sediments are under water and the known contaminated sediments are not associated with community swimming locations.

Fish and Sediments Advisories

Between 1978 and 1984 PCBs were found in fish samples collected from the Spokane River by the Washington State Department of Ecology. Additional studies conducted in the 1990s showed that fish collected from portions of the river continued to show significant contamination. As a result, the state Departments of Ecology and Health along with the local Spokane Regional Health District jointly issued fish and sediment advisories. These advisories warn the public about limiting fish consumption in certain areas of the river, how to prepare fish to reduce intake of PCB contamination, and warn about contamination in sediments at specific beaches. The current fish consumption advisory is based on data from fish samples collected in 1999. (See Appendix B for copies of the Fish and Sediment advisories). Ecology plans to collect additional fish

sampling data in the near future and evaluate it, along with fish tissue sampling data collected during the PCB Total Maximum Daily Load process conducted in 2004-2005.

Remedial Investigation (RI)
The purpose of the Remedial Investigation was to evaluate the extent of PCBs in sediments at the site. The report identified PCBs along with cadmium, lead, zinc, total organic carbon (TOC) and retene as contaminants of concern in sediments. The report also concluded that PCB contamination occurs mainly in two areas. These areas are identified as Deposit 1 and Deposit 2. Deposit 1 begins directly behind the dam, in deep water on the north side of the river, and covers approximately 3.7 acres in an easterly, up-stream direction. Deposit 2 covers a smaller 0.2 acre shallow-water area, along the north bank of the river, within a side channel, near what is called "Donkey Island."

Surface water sampling to investigate Deposit 1 showed fluctuations in PCB levels. Results showed higher concentrations of PCBs during lower flow periods in September 2003. All groundwater results collected near Deposit 1 indicate PCBs are significantly below required state and federal drinking water contaminant levels.

Feasibility Study (FS)
The draft FS report outlines four proposed cleanup options for the site, including five sub-alternatives under Alternative 3. Cleanup options fall into the categories of capping or dredging. Capping in some form is involved in all except one alternative. All options assume there will be water quality controls implemented upstream to deal with the sources of PCBs under existing wastewater discharge permits and future total maximum daily load (TMDL) limits. Each option also includes some type of performance monitoring.

Alternative 1: *Monitored Natural Recovery*. This option relies on the natural deposition of sediments over existing PCBs to isolate them and reduce exposure and risks associated with contamination.

Alternative 2: *Enhanced Natural Recovery*. This option places a 6-inch layer of clean sand on top of the PCB-contaminated sediments.

Alternative 3: *Sediment Capping*. The 5 sub-alternatives in this option place sand, gravel, and/or coal and clay products in varying thicknesses over the PCB-contaminated sediments mainly at Deposit 1. These sub-alternatives are intended to stabilize PCBs in sediments, prevent possible erosion, create a clean environment for bottom-dwelling organisms, and eliminate or reduce transport of dissolved PCBs into the overlying water column or underlying groundwater. Long-term monitoring is also included.

3A: This option places 1 foot of clean sand over Deposit 1 with an additional 3 inches of gravel on top of the sand to act as an armor and assure stability over time. This option is also applied to Deposit 2 without the gravel armor.

3B: This option places sand over the contaminated sediments, followed by a 6-inch layer of AquaBlok™, or similar clay-based product, which is covered with a protective gravel armor on the surface. AquaBlok™ is a material that includes polymers, clay minerals and other additives that are blended and surround a core such as gravel. They form a tight clay-based seal when placed over the contaminated sediments.

3C: This option is the same as 3B, except the thickness of the clay capping AquaBlok™ material is increased to approx. 18 inches.

3D: This option places a 6-inch cap of granulated coal over Deposit 1. The coal is covered with 6 inches of sand, then another layer of protective gravel armor is placed over the sand. The granulated coal is an "active" capping material that strongly adsorbs and effectively captures dissolved PCBs that may move upward.

3E: This option is similar to option 3D, but places an additional 12 inches of granulated coal over
Deposit 1 (approximately 18 inches total) to increase adsorption capacity for any dissolved PCBs.

Alternative 4: *Dredging, Off-site Disposal and Residuals Capping*. This option removes the top 3.5 feet of sediments in Deposit 1 and the top 2 feet in Deposit 2. Under this alternative nearly 95 percent of the PCB-contaminated sediments are removed and disposed off site at a licensed disposal facility. Two feet of sand would then be placed over the remaining PCBs that could not effectively be removed by dredging. A mechanical clamshell is used to remove sediments and debris from Deposit 1 and materials are dewatered. Water from the dewatering process may require treatment to remove PCB particles before being discharged.

Draft Cleanup Action Plan (DCAP)

Ecology evaluated the proposed cleanup alternatives in the Feasibility Study and selected the following capping and removal cleanup methods for PCBs and co-occurring contaminants. The proposed actions are draft until public review and comment are considered.

Deposit 1 – Capping. Ecology selected Alternative 3D as the proposed cleanup option. There is a contingency remedy outlined in the DCAP that may be used instead of Alternative 3D if appropriate performance cannot be achieved during pre-design testing. The selected Alternative 3D actions below create a protective cap over the contamination at this location by doing the following:

- Placing a 6-inch layer of granular bituminous coal, not to be less than 4 inches at any location, over the PCB-contaminated sediments. Note: Granulated coal is an "active" capping material that strongly adsorbs and effectively captures dissolved PCBs that may move upward.

- Covering the coal with a 6-inch layer of sand.
- Covering the sand with a 3-inch layer of protective gravel armor.

Long-term monitoring will be used to assure effectiveness and integrity of the cap. Institutional controls may be applied, if necessary, to further protect the integrity of the cleanup action over time. Five year reviews will be conducted to ensure that the selected clean up action continues to provide adequate protection of human health and the environment. All permit requirements including federal, as well as state and local substantive requirements, will be met for work conducted at Deposits 1 and 2.

Deposit 2 – Removal and Replacement. Ecology selected a cleanup action similar to Alternative 4 as the proposed cleanup for the Donkey Island location. This option requires the following actions:

- Removing approximately 2 feet of fine-grained sediment down to cobble substrate.
- Replacing sediment that has been removed with approximately 2 feet of clean sand.
- Transporting excavated material to a licensed disposal facility.

Draft Consent Decrees.
Two draft Consent Decrees are proposed as legal agreements between the involved parties. The decrees ensure details of the draft Cleanup Action Plan are implemented in accordance with all applicable laws and regulations. A decree between Ecology and Kaiser, to be entered in federal bankruptcy court, requires Kaiser to make a financial contribution toward the cost of the cleanup. Another decree between Ecology and Avista will be entered in State court and established Avista as responsible for implementing the Cleanup Action Plan. Both Consent Decrees have the same cleanup goals and objectives.

Other Studies on the Spokane River

Coeur d'Alene Basin/Spokane River – Federal Cleanup
The United States Environmental Protection Agency (USEPA), under the authority of CERCLA (the federal Superfund), has been investigating heavy metals contamination in the Coeur d' Alene basin and throughout the upper Spokane River. Heavy metals contamination is associated with historic mining operations in Idaho and includes zinc, arsenic, cadmium and lead. These metals have been determined to be broadly distributed throughout the upper Spokane River including and extending beyond the fine grained sediment areas behind Upriver Dam where PCBs are located. Ten shoreline recreational and aquatic habitat sites have been identified in the USEPA Record of Decision (ROD) for cleanup, along with the development of a cleanup approach for metals-rich sediments stored immediately behind Upriver Dam. At the time of the release of this PPP, Engineering designs are being developed to clean up metals contamination at two beaches along the Spokane River that contain the highest levels of contamination. The designs may include capping, removal and/or stabilization of the contamination at Starr Road and Island Complex. The design documents are expected in the spring of 2005.

Total Maximum Daily Load (TMDL)

Ecology is also developing a Total Maximum Daily Load (TMDL) assessment consistent with the federal Clean Water Act to address PCBs in the Spokane River. This issue deals with PCBs and water quality rather than PCBs in sediments. A draft report of this TMDL assessment is expected to be made public in 2005.

COMMUNITY BACKGROUND

Community Profile and Concerns

The Site is located just behind the Upriver Dam in the Spokane River in the County of Spokane, Washington and is surrounded by industrial/commercial businesses and residential homes. Parts of the Spokane River are widely used for recreational activities including swimming, boating and fishing. Certain areas of the River are also used by the Spokane Tribe, Slavic and Hmong communities for subsistence fishing.

The neighborhood population, although predominantly Caucasian, continues to become more diverse as the area grows. Slavics, Vietnamese, Native Americans, Asians and Hispanics add to the rich culture of people living and recreating in this area.

As a result of community interviews conducted in the summer of 2002, the following are some of the primary concerns expressed regarding cleanup of PCB contamination in sediments behind Upriver Dam:

- Some individuals expressed concern about potential negative economic impacts to home/property values.
- There is concern about how access to the river for recreation may be affected during cleanup.
- Property owners, users of the river and others interested in this site raised questions about whether disturbance to sediments during cleanup will reduce contamination versus increase it or move it to areas not currently contaminated. They are also concerned about recontamination issues.
- Keeping the aquifer/drinking water clean is a priority.
- People living along or near the river want to be informed about the work taking place and have an opportunity to contribute their opinions in the decision-making process.
- People want to be informed of any health risks for children, adults and pets that use the river.
- A coordinated effort to clean up the heavy metals contamination, address Total Maximum Daily Loads (TMDLs) and PCBs is preferred.

Ecology will focus on addressing these concerns through the activities listed in the Public Participation Activities and Timeline section below.

Public Participation Activities and Timeline

Some public participation efforts which will occur until the cleanup actions are completed are as follows:

- A **mailing list** is being developed for individuals who live near the Site. The potentially affected vicinity covers the adjacent properties and homes and/or businesses within close proximity to the Site and areas to be investigated. These persons along with Avista and Kaiser will receive copies of all fact sheets developed regarding the cleanup process via first class mail. Additionally, individuals, organizations, local, state and federal governments, and any other interested parties will be added to the mailing list as requested. Other interested persons may request to be on the mailing list at any time by contacting Carol Bergin at the Department of Ecology (see page 3 for details).

- **Public Repositories** have been established and documents may be reviewed at the following offices:

  Washington Department of Ecology
  4601 North Monroe
  Spokane, WA 99205-1295
  Contact: Ms. Johnnie Landis, Public Disclosure Coordinator
  509-629-3415

  Spokane Public Library
  906 West Main
  Spokane, WA 99201
  Contact: Ms. Dana Darylmple
  509-444-5300

  Argonne County Library
  4322 North Argonne Road
  Spokane, WA 99206
  Contact: Ms. Judy Luck
  509-926-4334

  Spokane Valley Public Library
  12004 East Main
  Spokane Valley, WA 99216
  Contact: Karen Byrne
  509-926-6283

- During each stage of cleanup **fact sheets** are created by Ecology then distributed to individuals on the mailing list. These fact sheets explain the stage of cleanup, the Site background, what happens next in the cleanup process and ask for comments from the public. A **30-day comment period** allows interested parties time to comment on the process. The information from these fact sheets is also published in a statewide **Site Register** which is sent to those who request to be on that mailing list. Persons interested in receiving the Site Register should contact Linda Thompson of Ecology at (360) 407-6069 or e-mail Ltho461@ecy.wa.gov. The fact sheets are also posted on Ecology's web page under the Toxics Cleanup Program at http://www.ecy.wa.gov/programs/tcp/sites/spo_riv/spo_riv.htm

- **Display ads or legal notices** are published in the Spokesman Review to inform the general public. These notices are published at the beginning of the 30-day comment period for the public notices. They are also used to announce public meetings and workshops or public hearings. Notices are also published in Russian and Spanish.

- **Public meetings, workshops, open houses and public hearings** are held based upon the level of community interest. If ten or more persons request a public meeting or hearing based on the subject of the public notice, Ecology will hold a meeting or hearing and gather comments. **These meetings, workshops or hearings will be held at a location close for the community living near the Site to attend.**

- Flyers may also be made available in various locations throughout the community (e.g., postings near Boulder Beach, at schools, libraries, etc.) to announce public comment periods, meetings, workshops, etc.

- Written comments which are received during the 30-day comment period may be responded to in a **Responsiveness Summary**. The Responsiveness Summary will be sent to those who make the written comments and will be available for public review at the Repositories.

Answering Questions from the Public

Individuals in the community may want to ask questions to better understand the cleanup process. Page 3 lists the contacts for the Upriver Dam Sediments Site. Interested persons are encouraged to contact these persons by phone or e-mail to obtain information about the Site, the process and potential decisions.

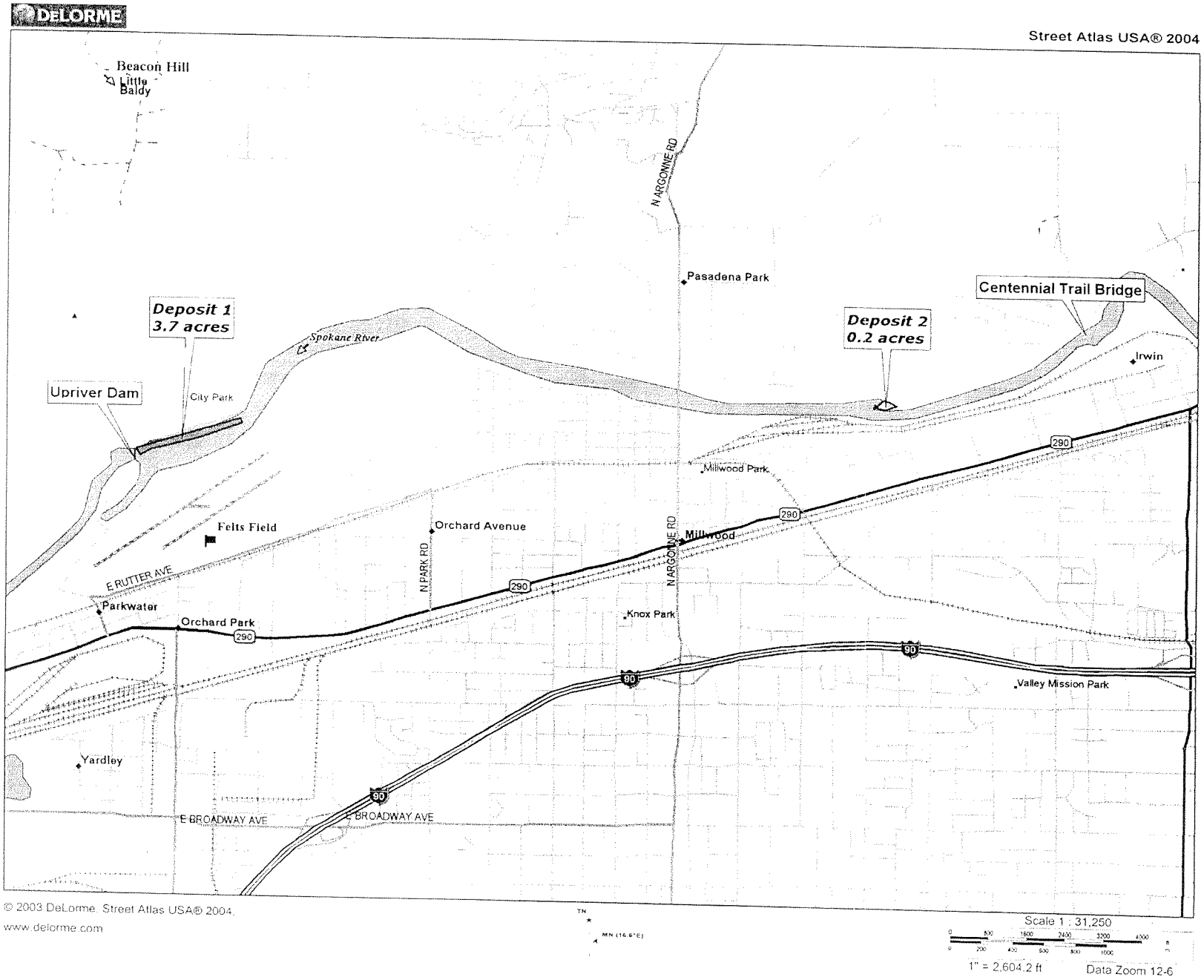
Public Notice and Comment Periods

Timeline

ACTION TAKEN	DATE
Community Interviews	July and August 2002
Draft Consent Decree for the Remedial Investigation/Feasibility Study	October 2002
Fact Sheet for the Draft Consent Decree for the Remedial Investigation/Feasibility Study [English, Spanish, Russian, Hmong and Vietnamese]	October 25 through November 23, 2002
Responsiveness Summary for Consent Decree/RI/FS	December 17, 2002
Draft Final Focused Remedial Investigation Report	February 2005
Draft Final Focused Remedial Investigation Report Appendices	February 2005
Draft Final Focused Feasibility Study	February 2005
Public Update re: Remedial Investigation/Feasibility Study availability and upcoming DCAP, Consent Decree and SEPA documents **(notice was to inform public that comment period is coming and documents were available prior to comment period - no comment period)**	February 2005
Remedial Investigation/Feasibility Study Reports, Draft Cleanup Action Plan, Draft Consent Decrees and Draft State Environmental Policy Act (SEPA) and Determination of Non-Significance (DNS)	March 22 – April 20, 2005
Public Meeting for Remedial Investigation/Feasibility Study Reports, Draft Cleanup Action Plan, Draft Consent Decrees and Draft State Environmental Policy Act (SEPA) and Determination of Non-Significance (DNS)	March 28, 2005 – Spokane Community College

APPENDIX A

SITE MAP


DeLorme
Street Atlas USA® 2004
Beacon Hill
Little Baldy
N ARGONNE RD
Pasadena Park
Centennial Trail Bridge
Deposit 1
3.7 acres
Spokane River
Deposit 2
0.2 acres
Irwin
Upriver Dam
City Park
290
Millwood Park
Felts Field
Orchard Avenue
Millwood
E RUTTER AVE
N PARK RD
N ARGONNE RD
Parkwater
Orchard Park
Knox Park
90
Valley Mission Park
Yardley
E BROADWAY AVE
E BROADWAY AVE
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TN
MN (16.6°E)
Scale 1 : 31,250
1" = 2,604.2 ft
Data Zoom 12-6

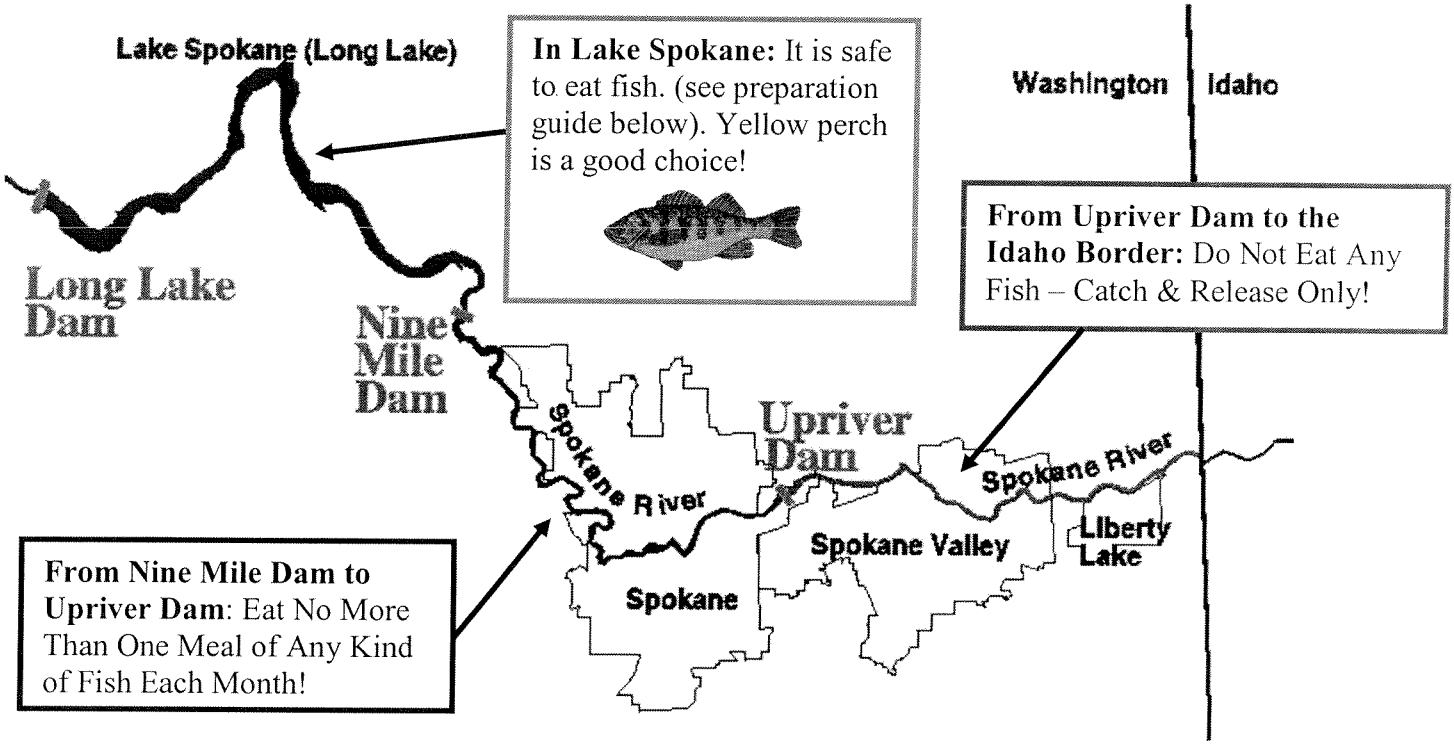
APPENDIX B

FISH and SEDIMENT ADIVSORIES

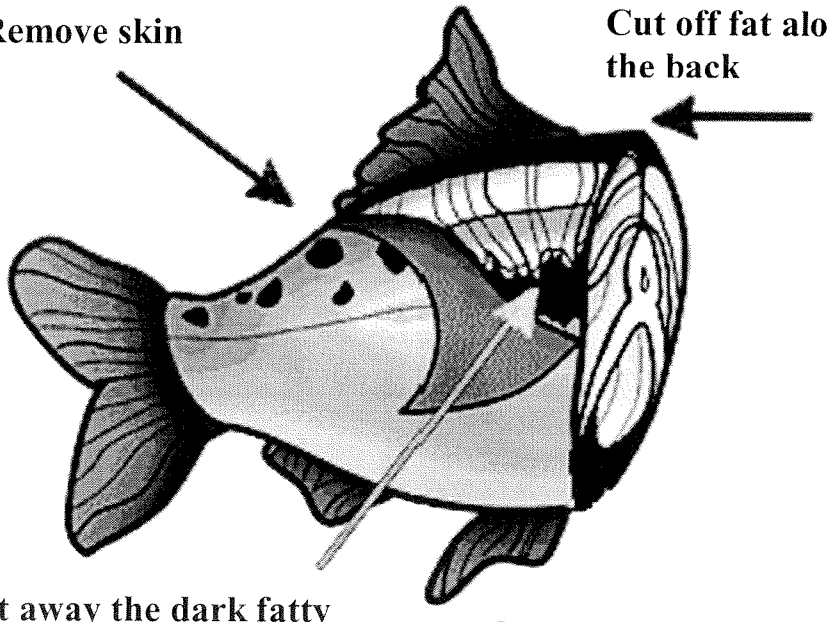
Spokane River Fish Meal Advisory

Issued July 2003

Spokane River fish contain chemicals called PCBs that can be harmful to your health. Fish from some parts of the river have more PCBs than others. Follow the advice given below if you eat fish from the Spokane River. Because PCBs can harm babies before they are born, women who are expecting a baby or planning to have babies should pay special attention to this warning.



Prepare Your Fish this way to Reduce Your Exposure to PCB's:



- **Cook fish on a rack so the juices and fat will drip off.**
- **Do not eat the juices, bones, organs, fat, and skin.**

For More Information Call
Toll-Free: 1-877-485-7316
www.doh.wa.gov/ehp/oehas/EHA fish adv.htm
or
Contact the Spokane Regional Health District at:
(509) 324-1574
www.srhd.org

Washington State Department of Health

SPOKANE REGIONAL HEALTH DISTRICT

ATTENTION

LEAD AND ARSENIC IN SHORELINE SOILS

Frequent contact with shoreline soils along the Spokane River from State Line to Plantes Ferry Park may be unsafe, particularly for young children. Follow these steps to limit your exposure to lead and arsenic in these soils.

- **Avoid muddy soil that might cling to clothing, toys, hands or feet.**
- **Wash your hands and face, especially before eating.**
- **Avoid dry, loose, or dusty soils that you might breathe.**
- **Wash anything that has come in contact with shoreline soils before entering your home.**

For more information contact the Spokane Regional Health District at:

(509) 324-1574

APPENDIX C

UPDATES and FACT SHEETS

UPRIVER DAM PCB SEDIMENTS SITE

(Spokane River PCB Sediment Contamination Project)

WASHINGTON STATE DEPARTMENT OF ECOLOGY

How will PCBs in Sediments Behind Upriver Dam be Addressed?

Capping and Removal of Sediments Recommended
The Washington State Department of Ecology has reviewed investigations and the proposed cleanup alternatives for polychlorinated biphenyls (PCBs) in sediments at the Upriver Dam site. The investigation covers the river area from approximately river mile 80 by the dam, to river mile 85 east of the Centennial Trail footbridge in the city of Spokane Valley, Spokane County, Washington (Fig. 1). Two locations are identified for cleanup. Capping is proposed for contaminated sediments found underwater immediately behind Upriver Dam, and removal is proposed for sediment from a side channel at Donkey Island. The proposed capping and removal effectively eliminate risks posed by PCBs and co-occurring contaminants found in sediments within the site. Co-occurring contaminants in sediments include heavy metals (e.g., cadmium, lead and zinc) and woody materials (e.g., total organic carbon (TOC) and retene).

Avista Development, Inc. and Kaiser Aluminum & Chemical Corporation are cooperating with Ecology in this site cleanup. Liberty Lake Sewer District and Inland Empire Paper Company have also been identified as responsible parties but have chosen not to participate in the cleanup at this time. Ecology is accelerating this work to assure certainty and timeliness of cleanup, which is affected by Kaiser Aluminum & Chemical Corporation's bankruptcy.

Polychlorinated Biphenyls (PCBs) are a group of manufactured, man-made chemicals historically used as insulating fluids or coolants and lubricants in transformers, capacitors or other electrical equipment. They have also been used in hydraulic oils, fluorescent lights, inks, carbonless paper and other uses. Manufacture of PCBs stopped in the U.S. in 1977 because of evidence they build up in the environment and may have harmful health effects. The main concern for PCB exposure to humans is from eating fish caught in certain sections of the Spokane River. Details about PCBs may be found on page 3.

Six Documents Ready for Review and Comment March 22 through April 20, 2005. The documents listed below are considered draft and do not become final until after the public comment period and any appropriate adjustments have been made. The box on page 3 has the locations for reviewing documents and sending comments.

- Remedial Investigation - What was Found at the Site;
- Feasibility Study - Proposed Cleanup Alternatives;
- Cleanup Action Plan - Ecology's Evaluation of Alternatives and Selected Cleanup;
- Consent Decrees (2)- Legal Agreements Between Ecology and Liable Persons; and
- State Environmental Policy Act (SEPA) Determination of Non-Significance (DNS).

A ***public meeting*** will be held **March 28, 2005, from 7-9 p.m.** to provide information about the investigations and proposed cleanup followed by a question and answer period. Meeting details are found on page 3.

Site History. Several factors contributed to the cleanup investigations behind Upriver Dam. Fish sampling conducted between 1978 and 1999 showed high levels of lead and PCBs in fish. This led Ecology, the Washington State Department of Health, and the local Spokane Regional Health District to issue a fish consumption advisory. Ecology sampled sediments immediately behind Upriver Dam in 2000 and results confirmed the presence of PCBs. Additional studies conducted by Ecology, and review of historical records, affirmed concerns that known wastewater discharges may also contribute contamination to fish and sediments in this area.

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Contaminants Identified in Draft Remedial Investigation Report. The purpose of the Remedial Investigation was to evaluate the extent of PCBs in sediments at the site. The report identified PCBs along with cadmium, lead, zinc, total organic carbon (TOC) and retene as contaminants of concern in sediments. The report also concluded that PCB contamination occurs mainly in two areas. These areas are identified as Deposit 1 and Deposit 2 (See Fig. 1). Deposit 1 begins directly behind the dam, in deep water on the north side of the river, and covers approximately 3.7 acres in an easterly, up-stream direction. Deposit 2 covers a smaller 0.2 acre shallow-water area, along the north bank of the river, within a side channel, near what is called "Donkey Island" (See Fig. 1).

Surface water sampling to investigate Deposit 1 showed fluctuations in PCB levels. Results showed higher concentrations of PCBs during lower flow periods in September 2003.

All groundwater results collected near Deposit 1 indicate PCBs are significantly below required state and federal drinking water contaminant levels.

Four Alternatives and Five Sub-Alternatives for Deposits 1 and 2 Evaluated in Draft Feasibility Study

- *Alternative 1*: *Monitored Natural Recovery*. This option relies on the natural deposition of sediments over existing PCBs to isolate them and reduce exposure and risks associated with contamination.

- *Alternative 2*: *Enhanced Natural Recovery*. This option places a 6-inch layer of clean sand on top of the PCB-contaminated sediments.

- *Alternative 3: Sediment Capping* has 5 sub-alternatives 3A-3E that place sand, gravel, and/or coal and clay products in varying thicknesses over the PCB-contaminated sediments mainly at Deposit 1. To varying degrees, these sub-alternatives include stabilizing PCBs in sediments, preventing possible erosion, creating a clean environment for bottom-dwelling organisms, and eliminating or reducing transport of dissolved PCBs into the overlying water column or underlying groundwater. Long-term monitoring is also included.

- *Alternative 4: Dredging, Off-site Disposal and Residuals Capping* would remove an estimated 3.5 feet of sediments in Deposit 1 and 2 feet in Deposit 2. Under this alternative nearly 95 percent of the PCB-contaminated sediments are removed and disposed off-site at a licensed disposal facility. Two feet of sand would then be placed over the remaining PCBs that could not effectively be removed by dredging. Under this alternative, a mechanical clamshell is used to remove sediments and debris from Deposit 1 and materials are dewatered. Water from the dewatering process may require treatment to remove PCB particles before being discharged.

All alternatives assume there will be water quality controls implemented upstream to deal with other sources of PCBs under existing wastewater discharge permits and future total maximum daily load (TMDL) limits. Each option also includes some type of performance monitoring.

Ecology Selects Capping and Removal in the Draft Cleanup Action Plan. Ecology evaluated the proposed cleanup alternatives in the Feasibility Study and selected the following capping and removal cleanup methods for PCBs and co-occurring contaminants. The proposed actions are draft until public review and comment are considered.

Deposit 1 - Capping. Ecology selected Alternative 3D as the proposed cleanup option. There is a contingency remedy outlined in the DCAP that may be used instead of Alternative 3D if appropriate performance cannot be achieved during pre-design testing. The selected Alternative 3D actions below create a protective cap over the contamination at this location by doing the following:

- Placing a 6-inch layer of granular bituminous coal, not to be less than 4 inches at any location, over the PCB-contaminated sediments.
  Note: Granulated coal is an "active" capping material that strongly adsorbs and effectively captures dissolved PCBs that may move upward.
- Covering the coal with a 6-inch layer of sand.
- Covering the sand with a 3-inch layer of protective gravel armor.

Long-term monitoring will be used to assure effectiveness and integrity of the cap. Institutional controls may be applied, if necessary, to further protect the integrity of the cleanup action over time. Five year reviews will be conducted to ensure that the selected clean up action continues to provide adequate protection

of human health and the environment. All permit requirements including federal, as well as state and local substantive requirements, will be met for work conducted at Deposits 1 and 2.

Deposit 2 - Removal and Replacement. Ecology selected a cleanup action similar to Alternative 4 as the proposed cleanup for the Donkey Island location. This option requires the following actions:

- Removing approximately 2 feet of fine-grained sediment down to cobble substrate.
- Replacing sediment that has been removed with approximately 2 feet of clean sand.
- Transporting excavated material to a licensed disposal facility.

Draft Consent Decrees. Two draft Consent Decrees are proposed as legal agreements between the involved parties. The decrees ensure details of the draft Cleanup Action Plan are implemented in accordance with all applicable laws and regulations. A decree between Ecology and Kaiser, to be entered in federal bankruptcy court, requires Kaiser to make a financial contribution toward the cost of the cleanup. Another decree between Ecology and Avista will be entered in State court and makes Avista responsible for implementing the Cleanup Action Plan. Both Consent Decrees have the same cleanup goals and objectives.

Draft State Environmental Policy Act (SEPA) and Determination of Non-Significance (DNS) - No Probable Adverse Impact. The State Environmental Policy Act, known as SEPA, requires government agencies to consider potential environmental impacts of a project before beginning the cleanup.

- After review of a completed environmental checklist and other site specific information, Ecology has determined the cleanup of PCBs will not have a probable adverse impact on the environment.
- This action will benefit the environment by reducing the release of toxic chemicals from the site.
- Therefore, Ecology has issued a Determination of Non-Significance.

March 2005 Publication No. 05-09-021

Comments Accepted: March 22 through April 20, 2005

Public Meeting: Monday, March 28, 2005 7-9 p.m.
Spokane Community College, 1810 North Greene Street
Lair Auditorium, Bldg 6, Spokane, WA

A public hearing will be held if at least ten people request one.

Document Review Locations

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Eastern Regional Office, 4601 North Monroe
Spokane, WA 99205-1295
Mrs. Johnnie Landis 509-329-3415

Spokane Public Library, 906 West Main Ave
Spokane, WA 99201 509-444-5300

Argonne County Library, 4322 North Argonne
Spokane, WA 99206 509-926-4334

Spokane Valley Library, 12004 East Main
Spokane Valley, WA 99216 509-926-6283

Ecology's Toxics Cleanup Website:
http://www.ecy.wa.gov/programs/tcp/sites/spo_riv/spo_riv.htm

Comments/Technical Questions:

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Public Meetings, Hearings and Mailings:

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E-mail: cabe461@ecy.wa.gov

PCB details: See Agency for Toxic Substances and Disease Registry http://www.atsdr.cdc.gov/tfacts17.html

Fish and Sediment Advisories:
http://www.ecy.wa.gov/programs/tcp/sites/spo_riv/Spokane_River_hp.htm

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Thomas Perkow 509-575-2024

Para asistencia en Espanol:
Sr. Antonio Valero 509-454-7840

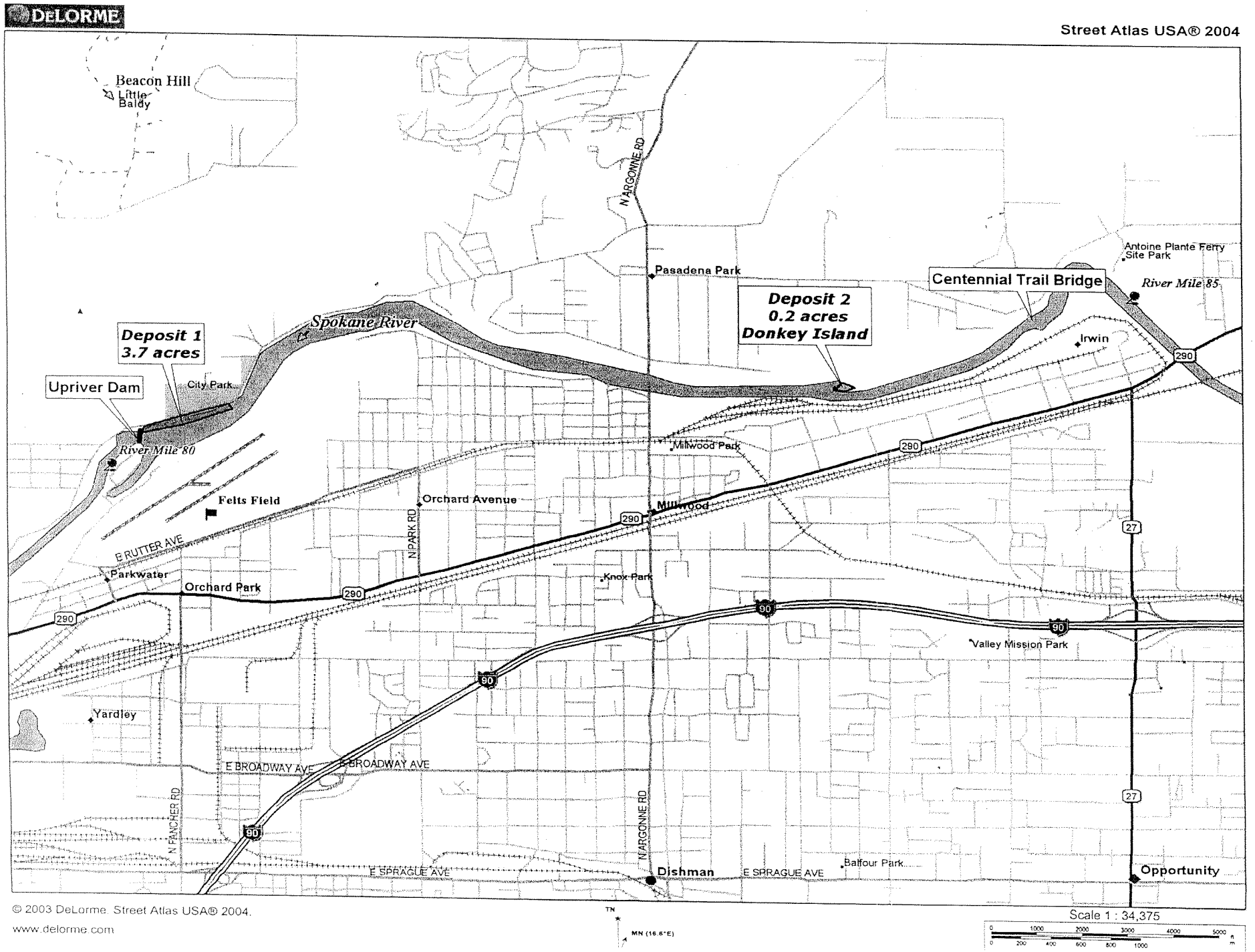

FIGURE 1

If you require this publication in an alternate format, please call Marilyn Summers at 509-329-3444 or call 711 or 1-800-833-6388 (TTY)

UPRIVER DAM
PCB SEDIMENTS SITE

WASHINGTON STATE DEPARTMENT OF ECOLOGY

(Spokane River PCB Sediment Contamination Project)

Are You Interested in the Proposed Cleanup of Sediments Behind Upriver Dam?

Reports Available for Review

The public may now review two reports that outline investigations and alternatives for cleanup of polychlorinated biphenyls (PCBs) in sediments behind Upriver Dam. The draft Remedial Investigation and Feasibility Study reports are being released before the formal comment period begins, so the public may get a head start on reviewing two of the five documents related to cleanup at this site. The remaining three documents: the draft Cleanup Action Plan, draft Consent Decree and draft State Environmental Policy Act (SEPA) determination are being developed and will be available soon. The formal review and comment period will begin in March and comments will be accepted on all five documents at that time. Documents do not become final until after the public comment period and any appropriate adjustments have been made. A public meeting will be held in March to explain the documents and answer questions. Ecology is accelerating this work to assure certainty and timeliness of cleanup, which is complicated by Kaiser Aluminum & Chemical Corporation's bankruptcy.

In January 2003, Ecology, Avista Development, Inc. and Kaiser Aluminum & Chemical Corporation entered into a legal agreement to evaluate the extent of PCB contamination in sediments behind Upriver Dam. Liberty Lake Sewer District and Inland Empire Paper Company have also been identified as responsible parties but chose not to participate in the agreement. The site covers the area from approximately river mile 80 by the dam, to river mile 85 east of the Centennial Trail Footbridge (See Fig. 1).

Polychlorinated Biphenyls (PCBs)

PCBs are a group of manufactured chemicals historically used as insulating fluids or coolants and lubricants in transformers, capacitors or other electrical equipment. They have also been used in hydraulic oils, fluorescent lights, inks, carbonless paper and other uses. Manufacture of PCBs stopped in the U.S. in 1977 because of evidence they build up in the environment and may have harmful health effects. Humans may be exposed to PCBs from the Spokane River by eating fish caught from certain locations of the river. (For PCB details, see box on page 2)

Draft Remedial Investigation Report (RI)

The draft RI report concludes there are two primary areas where PCB contamination in sediments is a concern. The first area is called Deposit 1. This area begins directly behind the dam in deep water on the north side of the river and covers 3.7 acres in an easterly, up-stream direction. The second area is called Deposit 2. It covers a smaller 0.2 acre shallow-water area on the north bank of the river near what is referred to as "Donkey Island" (See Fig. 1).

Draft Feasibility Study Report (FS)

The draft FS report outlines four proposed cleanup options for the site, including five sub-alternatives under Alternative 3. Cleanup options fall into the categories of capping or dredging. Capping in some form is involved in all except one alternative. All options assume there will be water quality controls implemented upstream to deal with the sources of PCBs under existing wastewater discharge permits and future total maximum daily load (TMDL) limits. Each option also includes some type of performance monitoring.

Alternative 1: *Monitored Natural Recovery*. This option relies on the natural deposition of sediments over existing PCBs to isolate them and reduce exposure and risks associated with contamination.
Alternative 2: *Enhanced Natural Recovery*. This option places a 6-inch layer of clean sand on top of the PCB-contaminated sediments.
Alternative 3: *Sediment Capping*. The 5 sub-alternatives in this option place sand, gravel, and/or coal and clay products in varying thicknesses over the PCB-contaminated sediments mainly at Deposit 1.

These sub-alternatives are intended to stabilize PCBs in sediments, prevent possible erosion, create a clean environment for bottom-dwelling organisms, and eliminate or reduce transport of dissolved PCBs into the overlying water column or underlying groundwater. Long-term monitoring is also included.

3A: This option places 1 foot of clean sand over Deposit 1 with an additional 3 inches of gravel on top of the sand to act as an armor and assure stability over time. This option is also applied to Deposit 2 without the gravel armor.

3B: This option places sand over the contaminated sediments, followed by a 6-inch layer of AquaBlok$_{TM}$, or similar clay-based product, which is covered with a protective gravel armor on the surface. AquaBlok$_{TM}$ is a material that includes polymers, clay minerals and other additives that are blended and surround a core such as gravel. They form a tight clay-based seal when placed over the contaminated sediments.

3C: This option is the same as 3B, except the thickness of the clay capping AquaBlok$_{TM}$ material is increased to approx. 18 inches.

3D: This option places a 6-inch cap of granulated coal over Deposit 1. The coal is covered with 6 inches of sand, then another layer of protective gravel armor is placed over the sand. The granulated coal is an "active" capping material that strongly adsorbs and effectively captures dissolved PCBs that may move upward.

3E: This option is similar to option 3D, but places an additional 12 inches of granulated coal over Deposit 1 (approximately 18 inches total) to increase adsorption capacity for any dissolved PCBs.

Alternative 4: *Dredging, Off-site Disposal and Residuals Capping.* This option removes the top 3.5 feet of sediments in Deposit 1 and the top 2 feet in Deposit 2. Under this alternative nearly 95 percent of the PCB-contaminated sediments are removed and disposed off site at a licensed disposal facility. Two feet of sand would then be placed over the remaining PCBs that could not effectively be removed by dredging. A mechanical clamshell is used to remove sediments and debris from Deposit 1 and materials are dewatered. Water from the dewatering process may require treatment to remove PCB particles before being discharged.

Draft Cleanup Action Plan

Ecology is evaluating the proposed alternatives and will present proposed cleanup actions in the draft Cleanup Action Plan available for review and comment in March.

Draft Consent Decree

A draft Consent Decree will be completed and available for review and comment in March. The draft Consent Decree is a proposed legal agreement between Ecology, Avista Development, Inc. and Kaiser Aluminum & Chemical Corporation that ensures details of the draft Cleanup Action Plan are implemented in accordance with all applicable laws and regulations.

Draft State Environmental Policy Act (SEPA) and Determination of Non-Significance (DNS)

The State Environmental Policy Act, known as SEPA, requires government agencies to consider potential environmental impacts of a project before beginning the cleanup. After review of a completed environmental checklist, and other site specific information, Ecology will determine if the cleanup of PCBs may have a probable adverse impact on the environment. If adverse impacts are not identified, a Determination of Non-Significance may be issued. The draft SEPA determination will also be available for review and comment in March.

Contact Information

Если вам нужно помощь по русский, звоните

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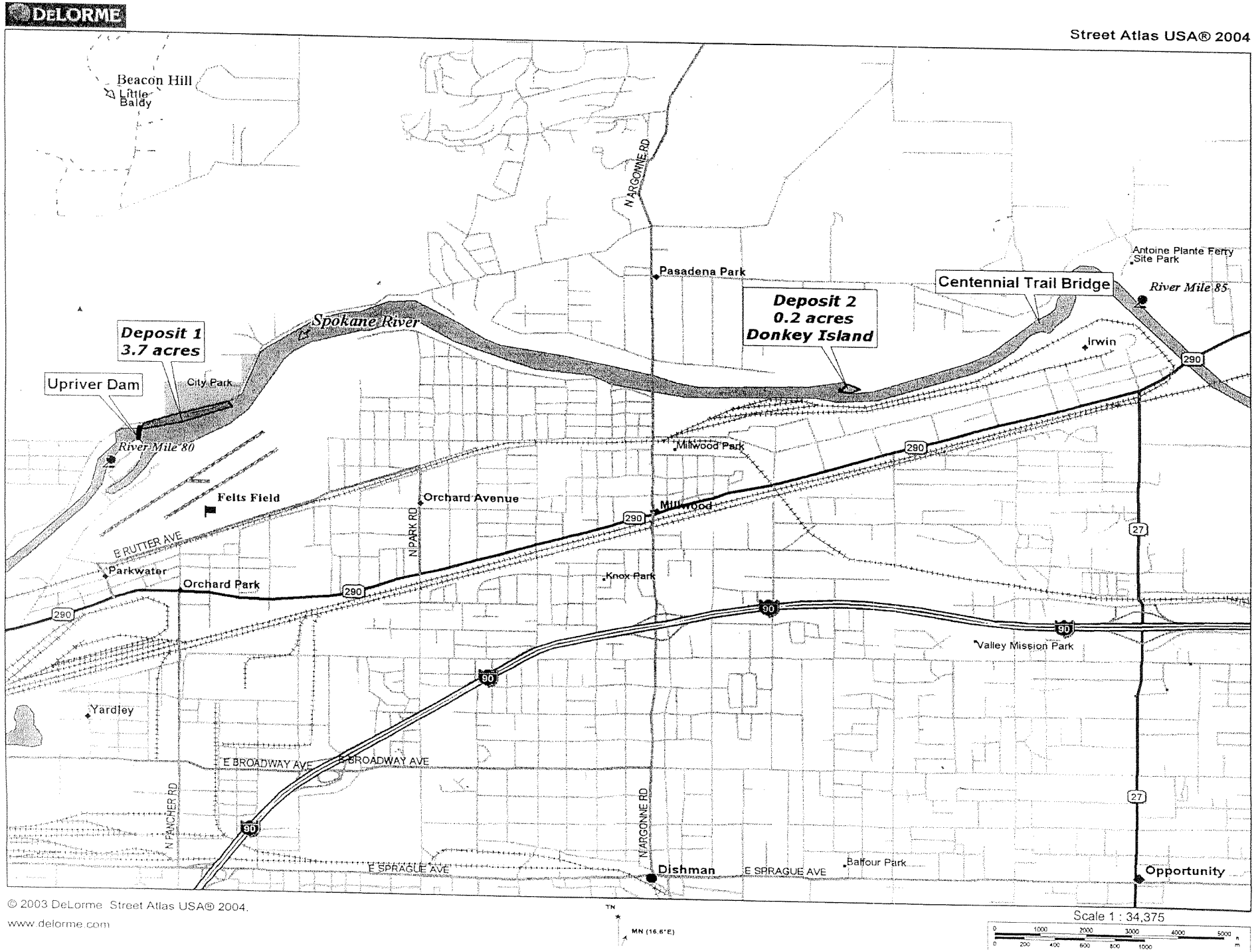
PCB details: See Agency for Toxic Substances and Disease Registry http://www.atsdr.cdc.gov/tfacts17.html

Spokane River Fish Meal Advisory:
http://www.ecy.wa.gov/programs/tcp/sites/spo_riv/Spokane_River_hp.htm


DeLORME
Street Atlas USA® 2004
Beacon Hill
Little Baldy
N ARGONNE RD
Pasadena Park
Antoine Plante Ferry Site Park
Centennial Trail Bridge
River Mile 85
Deposit 2
0.2 acres
Donkey Island
Irwin
Deposit 1
3.7 acres
Spokane River
Upriver Dam
City Park
River Mile 80
Millwood Park
290
Felts Field
Orchard Avenue
Millwood
N PARK RD
E RUTTER AVE
Parkwater
Orchard Park
Knox Park
27
90
Valley Mission Park
Yardley
E BROADWAY AVE
N PANCHER RD
E SPRAGUE AVE
Dishman
Balfour Park
Opportunity
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www.delorme.com
TN
MN (16.6°E)
Scale 1 : 34,375

FIGURE 1

WASHINGTON STATE DEPARTMENT OF ECOLOGY

UPRIVER DAM
PCB SEDIMENTS SITE UPDATE
(Spokane River PCB Contamination Project)

The Washington Department of Ecology began investigations in the fall of 2002 to determine where and how much polychlorinated biphenyls (PCB) contamination exists in sediments found in and along the Spokane River behind Upriver Dam. The studies cover the area from Upriver Dam (approx. rivermile 80) to the Centennial Trail footbridge (approx. rivermile 85).

Ecology entered into a Consent Decree with Avista Development, Inc. and Kaiser Aluminum & Chemical Corporation in January 2003 to perform a remedial investigation and feasibility study (RI/FS) which focuses on PCB contamination in sediments. The Consent Decree is a legal agreement between Ecology and parties responsible for the contamination. It provides specifics of how the investigations and evaluation of cleanup alternatives will be carried out in accordance with Washington's toxic waste cleanup law - the Model Toxics Control Act, or MTCA. Although Kaiser is currently in bankruptcy, participation in the Consent Decree is approved by the federal bankruptcy court. Liberty Lake Sewer District and Inland Empire Paper Company have also been identified as responsible parties, but are not participants to this decree.

Ecology is continuing to gather data to determine the nature and extent of contamination in the study area. The investigation phase will be completed by the middle of 2004. The feasibility study will then be conducted to evaluate and propose certain cleanup alternatives. Remedial Investigation and Feasiblity Study reports will be completed and made available to the public for comment in late 2004. After the comment period is closed and the report is finalized the project will proceed with the development of a Draft Cleanup Action Plan. This plan will contain Ecology's selected cleanup alternative and will be made available for a 30-day comment period.

Polychlorinated Biphenyls (PCBs) are a group of manufactured chemicals, either solids or oily liquids. In pure product form they may range from colorless to light yellow in color and have no smell or taste. These chemicals have been used in the past for several industrial and commercial purposes including as coolants and lubricants, in electrical equipment and inks and various other uses. Since 1977 PCBs have not been manufactured in the United States because of evidence they build up in the environment and may cause harmful health effects.

Humans may be exposed to PCBs from the Spokane River by eating fish caught from certain locations of the river. Swimming in the river is safe and does not pose a threat to health.

Concerns about PCB-contaminated fish in the Spokane River prompted the Department of Health, the Department of Ecology, and the Spokane Regional Health District to issue a fish-consumption advisory in 1999 that was updated in March 2001. The current advisory issued in July 2003 by the Department of Health and Spokane Regional Health District recommends that no fish caught between Upriver Dam and the Idaho border should be consumed. People are

being encouraged to eat fish from Lake Spokane (Long Lake) where PCBs in fish are lower and to be aware of ways to reduce any potential consumption of PCBs through good preparation and cooking methods. As a courtesy, we have enclosed the July 2003 advisory. The advisory may also be found on Department of Health's website at www.doh.wa.gov/ehp/oehas/EHA_fish_adv.htm or Spokane Regional Health District at www.srhd.org.

Other Studies

The United States Environmental Protection Agency (USEPA) under authority of CERCLA (the federal Superfund) has also been conducting studies on the Spokane River. The USEPA work focuses on metals such as zinc, arsenic, cadmium and lead associated with historic mining operations in Idaho. These metals have been broadly distributed throughout the upper Spokane River, including and extending beyond the fine grained sediment areas behind Upriver Dam where the PCBs under study are located. The USEPA Record of Decision, or ROD, (September 2002) selects capping or dredging as the cleanup alternatives to reduce metals risks in sediments associated with Upriver Dam. A final alternative has not been selected between these two sediment cleanup options. In addition, ten shoreline beach areas in Washington upstream of Upriver Dam, which are impacted by metals, also are slated to be cleaned up. For more information on the USEPA metals cleanup efforts in the Coeur d'Alene Basin and information on the Spokane Regional Health District beach use advisory see the following websites:
http://yosemite.epa.gov/r10/cleanup.nsf/sites/cda
http://www.srhd.org/safety/environment/pdf/ShorelineSoilsAdvisories.pdf

Ecology plans to coordinate, to the extent possible, the cleanup actions focused on PCBs in sediments at the Upriver Dam Site with the USEPA's metal cleanup plans.

Ecology is also developing a Total Maximum Daily Load (TMDL) assessment of PCBs and an associated water quality improvement plan for the Spokane River. This improvement effort focuses primarily on controlling PCBs through reductions in the discharge of PCBs, rather than the cleanup of PCBs in sediments. The TMDL study plan, called a Quality Assurance Project Plan (QAPP), is currently available for comment and may be found at Ecology's website: **http://www.ecy.wa.gov/biblio/0303107.html.**

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Site Manager for PCB cleanup in sediments behind Upriver Dam

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UPRIVER DAM PCB SEDIMENTS SITE

(Spokane River PCB Contamination Project)

WASHINGTON STATE DEPARTMENT OF ECOLOGY

DRAFT CONSENT DECREE FOR THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY

The Washington Department of Ecology is proposing to enter into a Consent Decree to perform a Remedial Investigation and Feasibility Study (RI/FS) at the Upriver Dam PCB Sediments Site. The study will focus on polychlorinated biphenyls (PCBs) in sediments. The area to be studied is from approximately rivermile 80 at the Upriver Dam to approximately rivermile 85 located upstream of the Dam near the Centennial Trail footbridge. The Site is located in the County of Spokane, Washington (Figure 1).

The proposed Consent Decree will be a legal agreement between Ecology, Avista Development, Inc. and Kaiser Aluminum & Chemical Corporation regarding actions which will be performed as part of the RI/FS. The proposed Consent Decree will be implemented under the authority of the Model Toxics Control Act (MTCA) Chapter 70.105D (RCW). Because Kaiser is currently in bankruptcy, Kaiser and Avista participation in the Consent Decree is conditioned upon approval of the federal bankruptcy court.

The purpose of the Remedial Investigation (RI) is to gather more information to determine the nature and extent of PCBs in sediments in and along the Spokane River at and upstream of the dam along the portion of the river hydraulically influenced by Upriver Dam.

The Feasibility Study will identify and evaluate potential alternatives to address PCBs at the Site. An RI/FS Report will be made available to the public for comment before becoming final.

After the 30-day comment period for the proposed Consent Decree, Ecology will respond to comments received and may negotiate modifications, if appropriate.

Ecology invites the public to review and comment on the Draft Consent Decree for the Remedial Investigation/ Feasibility Study from October 25 through November 23, 2002. The box on the right indicates where documents may be reviewed, comments sent and additional information obtained. If ten or more persons request a public meeting or hearing on the Draft Consent Decree for the RI/FS, Ecology will grant the request.

Health Advisory

In March 2001 an updated health advisory was issued by the Spokane Regional Health District (in cooperation with state departments of Health and Ecology), advising

OCTOBER 2002 FACT SHEET

COMMENTS ACCEPTED:
October 25, through November 23, 2002.
This fact sheet is available in English, Russian, Spanish, Hmong and Vietnamese on Ecology's website under the Spokane River section at http://www.ecy.wa.gov/programs/tcp/sites/sites.html

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E-mail: cabe461@ecy.wa.gov
PCB details see Agency for Toxic Substances and Disease Registry
http://www.atsdr.cdc.gov/tfacts17.html

March 2001 Health Advisory for Spokane River Fish Consumption:
http://www.ecy.wa.gov/programs/tcp/sites/spo_riv/spo_riv_fish_adv.pdf

Publication No. 02-09-073

people to avoid or significantly limit their consumption of fish caught from certain locations of the river. See the box on page one for the website location of the advisory.

Polychlorinated Biphenyls (PCBs)

Polychlorinated biphenyls (PCBs) are a group of manufactured synthetic chemical products, either solids or oily liquids. In product form they may range from colorless to light yellow in color and have no smell or taste. These chemicals were historically used as insulating fluids, coolants and lubricants in transformers, capacitors or other electrical equipment; as heat transfer and hydraulic fluids; in inks; carbonless paper; and other uses. The manufacture of PCBs stopped in the United States in 1977 because of evidence they build up in the environment and may cause harmful health effects.

The potential human exposure to PCBs from the Spokane River is mainly through eating fish caught from certain locations of the river. The contaminated sediments are not known to be associated with community swimming locations.

Between 1978 and 1984 PCBs were found in fish samples collected by Ecology from the Spokane River. Additional studies done in the late 1990s show fish collected from certain locations still contain significant contamination.

The information collected from recent studies also resulted in a further understanding of PCBs in sediments and PCBs coming from Spokane-area point sources (i.e., industrial and municipal permitted discharges). Avista, Kaiser and Liberty Lake Sewer District have been identified as potential contributors to PCB contamination in Upriver Dam sediments through historic discharges of effluent wastewater to the Spokane River.

Other Studies

The United States Environmental Protection Agency (USEPA) under authority of CERCLA (the federal Superfund) has also been conducting studies on the Spokane River. The USEPA studies have focused on metals such as zinc, arsenic, cadmium and lead associated with historic mining operations in Idaho. These metals have been broadly distributed throughout the upper Spokane River, including and extending beyond the fine grained sediment areas behind Upriver Dam where PCBs are located. The USEPA Record of Decision (September 2002) selects capping or dredging as the cleanup alternatives to reduce metals risks in sediments associated with Upriver Dam. A final alternative has not been selected between these two options. For more information on the USEPA metals cleanup efforts in the Coeur d'Alene Basin see the following website: http://yosemite.epa.gov/r10/cleanup.nsf/sites/cda

The RI/FS to be performed by Kaiser and Avista is expected to be completed near the end of 2004. The USEPA metals RI/FS has been completed, but additional assessment work is anticipated near Upriver Dam. Ecology plans to coordinate, to the extent possible, the cleanup actions focused on PCBs in sediments at the Upriver Dam Site with the USEPA's plans.

Ecology is also developing a Total Maximum Daily Load (TMDL) assessment of PCBs in the Spokane River. This issue deals mainly with PCBs and water quality rather than the PCBs in sediments. A draft report of the TMDL assessment is expected in 2004.

What Happens Next?

Ecology will review all written comments submitted on the proposed Consent Decree for the PCB RI/FS, and, if necessary, may negotiate modifications to the Consent Decree. A Responsiveness Summary will be prepared to answer comments received. It will be available in the repositories listed on page one. Once the Consent Decree is finalized and approved by the appropriate courts, work will begin on completing the RI/FS.

How You May Be Involved:

- **Review the Draft Consent Decree for the Remedial Investigation/Feasibility Study October 25, through November 23, 2002.** Copies of the Consent Decree are available for review at the repositories listed in the shaded box on page one. Files may be reviewed at Ecology in Spokane Monday through Thursday, 8-5 p.m. by appointment only.
- **Submit written comments by November 23, 2002** to Mr. John Roland, Site Manager, at the Ecology address listed in the shaded box on page one.
- **Share this information** with interested individuals or groups.

APPENDIX D

CURRENT MAILING LIST

UPRIVER DAM SEDIMENTS SITE
(Provided Upon Request)

APPENDIX E
GLOSSARY

Agreed Order: A legal document issued by Ecology which formalizes an agreement between the department and potentially liable persons (PLPs) for the actions needed at a site. An agreed order is subject to public comment. If an order is substantially changed, an additional comment period is provided.

Applicable State and Federal Law: All legally applicable requirements and those requirements that Ecology determines are relevant and appropriate requirements.

Area Background: The concentrations of hazardous substances that are consistently present in the environment in the vicinity of a site which are the result of human activities unrelated to releases from that site.

Carcinogen: Any substance or agent that produces or tends to produce cancer in humans.

Chronic Toxicity: The ability of a hazardous substance to cause injury or death to an organism resulting from repeated or constant exposure to the hazardous substance over an extended period of time.

Cleanup: The implementation of a cleanup action or interim action.

Cleanup Action: Any remedial action, except interim actions, taken at a site to eliminate, render less toxic, stabilize, contain, immobilize, isolate, treat, destroy, or remove a hazardous substance that complies with cleanup levels; utilizes permanent solutions to the maximum extent practicable; and includes adequate monitoring to ensure the effectiveness of the cleanup action.

Cleanup Action Plan: A document which identifies the cleanup action and specifies cleanup standards and other requirements for a particular site. After completion of a comment period on a Draft Cleanup Action Plan, Ecology will issue a final Cleanup Action Plan.

Cleanup Level: The concentration of a hazardous substance in soil, water, air or sediment that is determined to be protective of human health and the environment under specified exposure conditions.

Cleanup Process: The process for identifying, investigating, and cleaning up hazardous waste sites.

Consent Decree: A legal document, approved and issued by a court which formalizes an agreement reached between the state and potentially liable persons (PLPs) on the actions needed at a site. A decree is subject to public comment. If a decree is substantially changed, an additional comment period is provided.

Containment: A container, vessel, barrier, or structure, whether natural or constructed, which confines a hazardous substance within a defined boundary and prevents or minimizes its release into the environment.

Contaminant: Any hazardous substance that does not occur naturally or occurs at greater than natural background levels.

Enforcement Order: A legal document, issued by Ecology, requiring remedial action. Failure to comply with an enforcement order may result in substantial liability for costs and penalties. An enforcement order is subject to public comment. If an enforcement order is substantially changed, an additional comment period is provided.

Environment: Any plant, animal, natural resource, surface water (including underlying sediments), ground water, drinking water supply, land surface (including tidelands and shorelands) or subsurface strata, or ambient air within the state of Washington.

Exposure: Subjection of an organism to the action, influence or effect of a hazardous substance (chemical agent) or physical agent.

Exposure Pathways: The path a hazardous substance takes or could take form a source to an exposed organism. An exposure pathway describes the mechanism by which an individual or population is exposed or has the potential to be exposed to hazardous substances at or originating from the site. Each exposure pathway includes an actual or potential source or release from a source, an exposure point, and an exposure route. If the source exposure point differs from the source of the hazardous substance, exposure pathway also includes a transport/exposure medium.

Facility: Any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly-owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, vessel, or aircraft; or any site or area where a hazardous substance, other than a consumer product in consumer use, has been deposited, stored, disposed or, placed, or otherwise come to be located.

Feasibility Study (FS): A study to evaluate alternative cleanup actions for a site. A comment period on the draft report is required. Ecology selects the preferred alternative after reviewing those documents.

Free Product: A hazardous substance that is present as a nonaqueous phase liquid (that is, liquid not dissolved in water).

Groundwater: Water found beneath the earth's surface that fills pores between materials such as sand, soil, or gravel. In aquifers, groundwater occurs in sufficient quantities that it can be used for drinking water, irrigation, and other purposes.

Hazardous Sites List: A list of sites identified by Ecology that requires further remedial action. The sites are ranked from 1 to 5 to indicate their relative priority for further action.

Hazardous Substance: Any dangerous or extremely hazardous waste as defined in RCW 70.105.010 (5) (any discarded, useless, unwanted, or abandoned substances including, but not limited to, certain pesticides, or any residues or containers of such substances which are disposed of in such quantity or concentration as to pose a substantial present or potential hazard to human health, wildlife, or the environment because such wastes or constituents or combinations of such wastes; (a) have short-lived, toxic properties that may cause death, injury, or illness or have mutagenic, teratogenic, or carcinogenic properties; or (b) are corrosive, explosive, flammable, or may generate pressure through decomposition or other means,) and (6) (any dangerous waste which (a) will persist in a hazardous form for several years or more at a disposal site and which in its persistent form presents a significant environmental hazard and may affect the genetic makeup of man or wildlife; and is highly toxic to man or wildlife; (b) if disposed of at a disposal site in such quantities as would present an extreme hazard to man or the environment), or any dangerous or extremely dangerous waste as designated by rule under Chapter 70.105 RCW: any hazardous substance as defined in RCW 70.105.010 (14) (any liquid, solid, gas, or sludge, including any material, substance, product, commodity, or waste, regardless of quantity, that exhibits any of the characteristics or criteria of hazardous waste as described in rules adopted under this chapter,) or any hazardous substance as defined by rule under Chapter 70.105 RCW; petroleum products.

Hazardous Waste Site: Any facility where there has been a confirmation of a release or threatened release of a hazardous substance that requires remedial action.

Independent Cleanup Action: Any remedial action conducted without Ecology oversight or approval, and not under an order or decree.

Initial Investigation: An investigation to determine that a release or threatened release may have occurred that warrants further action.

Interim Action: Any remedial action that partially addresses the cleanup of a site.

Mixed Funding: Any funding, either in the form of a loan or a contribution, provided to potentially liable persons from the state toxics control account.

Model Toxics Control Act (MTCA): Washington State's law that governs the investigation, evaluation and cleanup of hazardous waste sites. Refers to RCW 70.105D. It was approved by voters at the November 1988 general election and known is as Initiative 97. The implementing regulation is WAC 173-340.

Monitoring Wells: Special wells drilled at specific locations on or off a hazardous waste site where groundwater can be sampled at selected depths and studied to determine the direction of groundwater flow and the types and amounts of contaminants present.

Natural Background: The concentration of hazardous substance consistently present in the environment which has not been influenced by localized human activities.

National Priorities List (NPL): EPA's list of hazardous waste sites identified for possible long-term remedial response with funding from the federal Superfund trust fund.

Owner or Operator: Any person with any ownership interest in the facility or who exercises any control over the facility; or in the case of an abandoned facility, any person who had owned or operated or exercised control over the facility any time before its abandonment.

Polynuclear Aromatic Hydrocarbon (PAH): A class of organic compounds, some of which are long-lasting and carcinogenic. These compounds are formed from the combustion of organic material and are ubiquitous in the environment. PAHs are commonly formed by forest fires and by the combustion of fossil fuels.

Potentially Liable Person (PLP): Any person whom Ecology finds, based on credible evidence, to be liable under authority of RCW 70.105D.040.

Public Notice: At a minimum, adequate notice mailed to all persons who have made a timely request of Ecology and to persons residing in the potentially affected vicinity of the proposed action; mailed to appropriate news media; published in the local (city or county) newspaper of largest circulation; and opportunity for interested persons to comment.

Public Participation Plan: A plan prepared under the authority of WAC 173-340-600 to encourage coordinated and effective public involvement tailored to the public's needs at a particular site.

Recovery By-Products: Any hazardous substance, water, sludge, or other materials collected in the free product removal process in response to a release from an underground storage tank.

Release: Any intentional or unintentional entry of any hazardous substance into the environment, including, but not limited to, the abandonment or disposal of containers of hazardous substances.

Remedial Action: Any action to identify, eliminate, or minimize any threat posed by hazardous substances to human health or the environment, including any investigative and monitoring activities of any release or threatened release of a hazardous substance and any health assessments or health effects studies.

Remedial Investigation (RI): A study to define the extent of problems at a site. When combined with a study to evaluate alternative cleanup actions it is referred to as a Remedial Investigation/Feasibility Study (RI/FS). In both cases, a comment period on the draft report is required.

Responsiveness Summary: A compilation of all questions and comments to a document open for public comment and their respective answers/replies by Ecology. The Responsiveness Summary is mailed, at a minimum, to those who provided comments and its availability is published in the Site Register.

Risk Assessment: The determination of the probability that a hazardous substance, when released into the environment, will cause an adverse effect in exposed humans or other living organisms.

Sensitive Environment: An area of particular environmental value, where a release could pose a greater threat than in other areas including: wetlands; critical habitat for endangered or threatened species; national or state wildlife refuge; critical habitat, breeding or feeding area for fish or shellfish; wild or scenic river; rookery; riparian area; big game winter range.

Site: See Facility.

Site Characterization Report: A written report describing the site and nature of a release from an underground storage tank, as described in WAC 173-340-450 (4) (b).

Site Hazard Assessment (SHA): An assessment to gather information about a site to confirm whether a release has occurred and to enable Ecology to evaluate the relative potential hazard posed by the release. If further action is needed, an RI/FS is undertaken.

Site Register: Publication issued every two weeks of major activities conducted statewide related to the study and cleanup of hazardous waste sites under the Model Toxics Control Act. To receive this publication, please call (360) 407-7200.

Surface Water: Lakes, rivers, ponds, streams, inland waters, salt waters, and all other surface waters and water courses within the state of Washington or under the jurisdiction of the state of Washington.

TCP: Toxics Cleanup Program at Ecology

Total Petroleum Hydrocarbons (TPH): A scientific measure of the sum of all petroleum hydrocarbons in a sample (without distinguishing one hydrocarbon from another). The "petroleum hydrocarbons" include compounds of carbon and hydrogen that are derived from naturally occurring petroleum sources or from manufactured petroleum products (such as refined oil, coal, and asphalt).

Toxicity: The degree to which a substance at a particular concentration is capable of causing harm to living organisms, including people, plants and animals.

Underground Storage Tank (UST): An underground storage tank and connected underground piping as defined in the rules adopted under Chapter 90.76 RCW.

Washington Ranking Method (WARM): Method used to rank sites placed on the hazardous sites list. A report describing this method is available from Ecology.